

Bellwork Alg 2A Friday, December 16, 2016

1. Every time the clown came back from one of the birthday parties he put the extra supplies in the closet for the next party. Before the next party he realized he needed to buy some more balloons. Balloons come in two sizes, small and large. Each bag of large balloons has 20 balloons in it and each bag of small balloons has 32 balloons in it. He went to the balloon store along with all the other clowns and bought a total of 516 balloons. When he put the packages of balloons in the closet along with the other clown supplies he counted 21 bags of balloons. Write and solve a system of equations to find the number of bags of each type of balloon that the clown bought.

2. Solve this system of equations. State the solution, if any, as an ordered triple.

$$4x + 6y - 3z = 21$$

$$2x - 5y + z = -6$$

$$-6x + 8y - 5z = -9$$

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$$S = \# \text{ Bags small balloons}$$

$$L = \# \text{ " Large "}$$

$$20L + 32S = 516 \rightarrow 20L + 32S = 516$$

$$20(L + S = 21) \rightarrow \underline{20L + 20S = 420}$$

$$12S = 96$$

8 Bags of small balloons
and 13 Bags of large
balloons

$$L + (8) = 21$$

$$\underline{-8 \quad -8}$$

$$L = 13$$

$$S = 8$$

2. Solve this system of equations. State the solution, if any, as an ordered triple.

- ① $4x + 6y - 3z = 21$
- ② $2x - 5y + z = -6$
- ③ $-6x + 8y - 5z = -9$

First use Eq ① & ② to eliminate z

$$4x + 6y - 3z = 21 \rightarrow 4x + 6y - 3z = 21$$

$$3(2x - 5y + z = -6) \rightarrow + \underline{6x - 15y + 3z = -18}$$

$$\textcircled{A} \quad 10x - 9y = 3$$

2nd use Eq's ② & ③ to eliminate z again

$$5(2x - 5y + z = -6) \rightarrow 10x - 25y + 5z = -30$$

$$\underline{-6x + 8y - 5z = -9} \rightarrow + \underline{-6x + 8y - 5z = -9}$$

$$\textcircled{B} \quad 4x - 17y = -39$$

Third

USE EQ'S \textcircled{A} & \textcircled{B} to
solve for x & y

$$2(10x - 9y = 3) \rightarrow 20x - 18y = 6$$

$$\underline{5(4x - 17y = -39) \rightarrow -20x - 85y = -195}$$

$$67y = 201$$

use Eq \textcircled{A} to find
 x :

$$10x - 9(3) = 3$$

$$10x - 27 = 3$$

$$10x = 30 \quad \textcircled{x=3}$$

$$\leftarrow \textcircled{y=3}$$

Solution:
 $(3, 3, 3)$

4th

use Eq ② to
find z

$$2(3) - 5(3) + z = -6$$

$$6 - 15 + z = -6$$

$$\underline{-9 + z = -6}$$

$$\underline{+9 \quad +9}$$

$$\textcircled{z=3}$$